

REMARKS

Applicants have considered the outstanding official action. It is respectfully submitted that the claims are directed to patentable subject matter as set forth below.

Claim 23 has been rejected under 35 U.S.C. § 112, second paragraph, for having an insufficient antecedent basis for the limitation "said plate material." Applicants have amended claim 23 to overcome the rejection. Accordingly, withdrawal of the rejection is respectfully requested.

The outstanding rejections based on art are as follows:

- (1) Claims 10, 11, 14, 15 and 19-23 under 35 U.S.C. § 102(b) over U.S. Patent No. 5,833,516 (De Haas);
- (2) Claims 2-5, 13 and 17-18 under 35 U.S.C. § 103(a) over De Haas as applied above, in view of U.S. Patent No. 4,339,322 (Balko) or, alternatively over Balko in view of De Haas as applied above;
- (3) Claim 12 under 35 U.S.C. § 102(b) over De Haas in view of U.S. Patent No. 5,738,574 (Tolles); and

(4) Claim 16 under 35 U.S.C. § 102(b) over De Haas in view of U.S. Patent No. 5,750,190 (Kondrats).

Initially as to the rejections noted as (3) and (4) above, while the rejection is set forth as being under § 102, in view of the arguments set forth by the Examiner, applicants understand the rejections to be under § 103. As to the rejection of claim 12 over De Haas in view of Tolles, the Examiner acknowledges that De Haas does not teach silica grit blasting material and relies on obviousness and Tolles for this teaching. As to the rejection of claim 16 over De Haas in view of Kondrats, the Examiner acknowledges that De Haas does not teach vinyl polymer as a mask material and relies on obviousness and Kondrats for this teaching. Accordingly, rejection under § 102 is inconsistent with the Examiner's argument and so applicants will discuss the rejections of claims 12 and 16 as under 35 U.S.C. § 103.

Claim 23 is the sole independent claim. Claim 2 has been canceled and the subject matter thereof included in claim 23. Claim 2 is not rejected under 35 U.S.C. § 102 over De Haas. Accordingly, for this and other reasons as set forth below in relation to the other rejections, applicants submit that De Haas does not teach each and every

claimed element in accordance with the requirements of § 102.

De Haas is also applied with respect to certain dependent claims in combination with either Balko, or Tolles, or Kondrats.

Sole independent claim 23 claims a method for manufacturing flow field plates for use in fuel cells, electrolyzers and batteries which contain a fluid electrolyte comprising providing a plate material of electrically conductive material and impermeable to hydrogen and oxygen, positioning a particulate etchant-resistant patterned mask comprising a pattern design adjacent the plate material, sandblasting, bead blasting or grit blasting the particulate etchant-resistant patterned mask to provide a fluid flow pattern determined by the pattern design on the mask on the plate material, wherein the fluid flow pattern distributes fuel and oxidant across the plate material.

De Haas is directed to plates of electrically insulating material, wherein the electrically insulating material has a plurality of cavities and/or apertures arranged in a pattern. De Haas does not teach or suggest a plate material of electrically conductive material as claimed. Rather, De Haas teaches plates made of electrically insulating material.

Additionally, De Haas teaches insulating plates which are used as control plates, spacer plates, or electron transport duct plates. (See column 3, lines 20-21.) The flow field plates of the claimed invention are not configured to provide ducts or channels for electrons to move in, but rather to provide ducts enabling fuel and oxidant to be distributed across the plate material. Accordingly, De Haas does not teach or suggest a fluid flow pattern that distributes fuel and oxidant across the plate material as claimed.

Additionally, De Haas does not teach or suggest that the plate material is impermeable to hydrogen and oxygen as the claimed plate material.

Applicants submit that the secondary references do not provide for the shortcomings of De Haas.

More particularly, Balko is directed to plates prepared by a pressure molding. Balko does not teach or suggest blasting methods as claimed. Additionally, Balko does not teach or suggest a plate material of electrically conductive material and impermeable to hydrogen and oxygen as claimed. Also, Balko does not teach or suggest a fluid flow pattern to distribute fuel and oxidant across the plate material as claimed.

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Tolles is directed to a mechanical polishing system with no disclosure of applicability to flow field plates. Accordingly, Tolles does not teach or suggest a plate material of electrically conductive material and impermeable to hydrogen and oxygen as claimed. Additionally, Tolles does not teach or suggest a fluid flow pattern which distributes fuel and oxidant across a plate material as claimed.

Kondrats is directed to vinyl polymer masks used as protective coatings during mechanical processing operations of vehicles or buildings. Kondrats does not teach or suggest a plate material of electrically conductive material and impermeable to hydrogen and oxygen as claimed. Additionally, Kondrats does not teach or suggest a fluid flow pattern which distributes fuel and oxidant across a plate material as claimed.

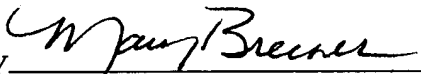
Thus, as to claims 2-5, 12, 13 and 16-18, the combination of De Haas with Balko or Tolles or Kondrats, does not teach or suggest each and every claimed element and, thus, does not render the claimed invention obvious within the meaning of 35 U.S.C. § 103. Withdrawal of the § 103 rejections based on the applied combinations of primary and secondary references is respectfully requested.

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Reconsideration and allowance of the claims is
respectfully requested.

Respectfully submitted,

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